

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2018

COMMUNICATION ENGINEERING

[Time : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Define directive gain.
2. Define beam width of an antenna.
3. Write the equation for total power in AM.
4. Define noise figure.
5. List the advantages of an RF amplifier.

(5 × 2 = 10)

PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Explain SMART antenna and list out its applications.
2. When a broadcast AM transmitter is 50% modulated its antenna current is 12A. What will be the current when the modulation depth is increased to 0.9 ?
3. List out the advantages of PCM.
4. Draw the block diagram of AM transmitter with high level modulation.
5. Describe any three types of internal noises.
6. Explain the need of a limiter in FM receiver.
7. Describe image frequency and IFRR.

(5 × 6 = 30)

## PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

## UNIT — I

- III (a) Explain ground wave propagation and its field strength at a distance.  
(b) Define the term diversity and explain the 3 types of diversity.

OR

- IV (a) Explain the different layers of ionosphere.  
(b) Draw the folded dipole antenna and explain its operation.

## UNIT — II

- V (a) Explain the circuit of a balanced modulator and derive the equation which shows that the carrier has been cancelled out ?  
(b) Draw the frequency spectrum of DSBFC system also find out the percentage power saving, if carrier and one of the sideband are suppressed at 100% modulation.

OR

- VI (a) Explain frequency modulation with neat figure and Derive the mathematical expression for FM wave.  
(b) Explain Pulse code modulation.

## UNIT — III

- VII (a) Explain the block diagram of AM transmitter with low level modulation.  
(b) Explain FM transmitter using PLL.

OR

- VIII (a) Explain the block diagram of crossby direct FM transmitter.  
(b) Describe the different types of external noises.

## UNIT — IV

- IX (a) Draw and explain the block diagram of an FM receiver.  
(b) Compare AM and FM receiver.

OR

- X (a) Explain the block diagram of superheterodyne receiver.  
(b) Explain simple and delayed AGC circuit.
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